MBNMS Research Activity Panel Meeting Summary
February 2005

Host: MBARI
Date: February 11th, 2005; 9 am to 12 pm

In Attendance:
Members

- Chris Harrold (Chair), Monterey Bay Aquarium
- Andrew DeVogelaere (RAP Coordinator), MBNMS
- Steve Moore (Vice-Chair), CSUMB
- Greg Cailliet, MLML
- Curt Storlazzi, USGS
- Francisco Chavez, MBARI
- Robin Tokmakian, NPS
- Eric Van Dyke, Elkhorn Slough NERR
- Geoff Wheat, NURP
- Gary Sharp (Special Advisor), Center for Climate/Ocean Resources Study

Guests:

- Sean Van Sommeran, Pelagic Shark Research Foundation
- Cinamon Vann, PISCO Policy Coordinator
- Deirdre Hall, MBNMS
- Erica Burton, MBNMS
- Becky Stamski, MBNMS

CONSENT ITEMS

Eric Van Dyke was introduced as the new RAP alternate for the Elkhorn Slough National Estuarine Research Reserve (ESNERR). Eric is a geographical ecologist who has worked in the region for many years (http://www.elkhornslough.org/esnerr.htm).

PRESENTATIONS

Institutional Update: MBARI (Francisco Chavez)

Francisco outlined the history of MBARI, which was founded in 1987 with 21 staff and currently has 222 employees. MBARI was started with, and continues to receive funding from, the Packard Foundation; the group now receives 25% of its funding from grants and has a total annual operating budget of $47 million. MBARI conducts innovative science from 3 research vessels, using ROVs, moorings, AUVs, and underwater cables. Francisco highlighted MBARI's extended field trip to the Sea of Cortez, where they examined biogeochemical cycles in coastal upwelling systems, hydrothermal vent geology, and the molecular ecology of vent organisms. The group has also been quantifying human impact on

the deep sea floor, such as underwater cables, deep sea CO_2 sequestration, and trawling. MBARI has an annual report available on their website (http://www.mbari.org).

15 years of MBARI Ocean Time Series Data & the California Current (Francisco Chavez)

MBARI has been measuring average annual cycles of sea surface temperature (SST) and surface primary production for 15 years. They can discern El Niño/La Niña signals, correlating low primary productivity with high SST. 50-year cycles have also been detected, which have been previously called Pacific Decadal Oscillations (PDOs). Because these are similar in impact to El Niño/La Niña events, but occur on a longer time scale, MBARI has elected to call them El Viejo/La Vieja signals. Based on 15 years of observations, MBARI predicts we are entering a La Vieja time period, with colder SST and higher primary productivity. One of the major differences MBARI has noted between El Viejo and El Niño times is that the changes in the higher latitudes are more amplified with the former, while the anomalies are strongest at the equator for the latter. Fifteen years of data also show that, while global warming was occurring prior to 1997-98, there is a cooling trend occurring now that may coincide with the ensuing La Vieja. Francisco and others compiled this study in a *Science* paper (2003, v. 299, p. 217-221), which included correlations between oceanographic trends and historical fishing records.

In coordination with this long-term monitoring, Francisco and others have shown that the California Current and the associated Davidson Undercurrent have been stronger since 1999. Other data sets, including the diets of seabirds, the weaning weights of elephant seals, and the structure of deep sea communities have displayed trends that support a change in oceanographic climate since ~1999-2000. In addition, meteorological patterns across the entire Pacific indicate that, since about 2000, the eastern Pacific appears to be "resisting" El Niño forcing that develop in the western Pacific (http://www.mbari.org/staff/chfr/).

Proposed Plans to Drill IODP Boreholes in the Sanctuary (Geoff Wheat)

Geoff gave a detailed history of the Integrated Ocean Drilling Program (IODP), including the parties involved, the ships and equipment used, and the resources needed to complete these major research projects. Overall, the science of IODP is motivated to understand: climate records, the oceanic crustal column, earthquake processes, fluid circulation in the seafloor and crust, microbiology, gas hydrates, and the creation of long-term observatories using boreholes (called Circulation Obviation Retrofit Kits or CORKs). To date, these observatories into the seafloor are found to be valuable, but are difficult to maintain and collect data from because of their isolated locations in the deep sea.

Texas A&M University, in collaboration with MBARI scientists, wants to create a borehole observatory in the Monterey Bay because the deep ocean can be accessed close to shore and because there are institutions in place (like MBARI) that can easily get to the observatory to download data and test instrumentation. The proposed site is at Smooth Ridge, on the north side of the canyon, in approximately 1000 m of water. Two holes would be drilled, one for

hydrology and one for seismology. Each hole would penetrate approximately 300 m into the sediment, without hitting bedrock, and a MARS node would link to both holes. A permanent seismometer would be placed in the seismology hole and would become the only such instrument affixed to the Pacific Plate. From both holes, the group will learn an immense about acoustics from turbidity currents, biogeography, paleo-oceanography, microbiology, pore-fluid, and the geologic history of the canyon. Most importantly, the borehole location in Monterey Bay would be an ideal site to develop the technology and skills to more effectively use these CORK observatories around the world.

The planning and approval process within IODP and NSF, which provides funding, is extensive and includes a complete environmental assessment of the proposed drilling area to avoid blow-outs during drilling from oil, gas, or freshwater aquifers. Sanctuary staff requested that this document be made available to them to speed up their own permitting process. Geoff believes that the environmental impacts will be minimal and they will work closely with the MBNMS to ensure that all environmental concerns are addressed. In addition, there may also be opportunities for sanctuary scientists to use the drilling ship as a research platform (*e.g.*, for bird observations).

Texas A&M and MBARI are now ready to go the Sanctuary to discuss permitting procedures. Sanctuary staff urged the research group to get the permit in as soon as possible because the process is extensive. The staff also thanked Geoff for giving the presentation, encouraging more communication so that both sides can be fully informed. For more information contact Charlie Paull (paull@mbari.org).

Pelagic Shark Research Foundation: Update on monitoring projects (Sean Van Sommeran)

Sean updated the RAP on various monitoring projects of the Pelagic Shark Research Foundation (PSRF), which was founded in 1990. The group works in Elkhorn Slough, conducting surveys to document shark and ray species, and to apply long-term tracking tags. In the outer bay, PSRF is studying shark populations through tagging, tracking and taking tissue samples near Año Nuevo Island. PSRF is developing new methods to observe and document sharks, using low impact methods for tagging and airplane reconnaissance. They have tagged just under 100 sharks, including 11 archival satellite tags. Sean encourages the research community to learn about the methods and goals of the PSRF. For more information, see the PSRF website (http://www.pelagic.org/).

DISCUSSION ITEMS

Sanctuary Currents Symposium (Andrew DeVogelaere)

Andrew gave an overview of the upcoming Sanctuary Currents Symposium, which will take place on March 12th at CSUMB. Highlights will include five key speakers, a panel discussion on science and policy, an awards ceremony, and over 60 posters from the regional research community. Sanctuary staff request volunteers from the RAP to be poster judges. Please

contact Kerry Irish if you are interested (kerry.irish@noaa.gov). More information and a schedule for the symposium can be found at http://www.mbnms-simon.org/symposium.php.

Update on February 2005 SAC meeting (Chris Harrold)

Chris presented the new RAP Purpose and Protocols to the SAC and they approved it unanimously, with very few questions. A request was made to have a standing invitation for Channel Islands NMS. Church Grimes, current MBNMS RAP member, is already on the CINMS RAP and may be able to fill this role.

There was discussion of the recently passed Marine Life Protection Act (MLPA) (www.dfg.ca.gov/mrd/mlpa). Interest was expressed by the RAP to have someone give an overview of the history and future planning of the MLPA. Cinamon Vann, PISCO Policy Coordinator, agreed to assist with this presentation.

The new Santa Cruz MBNMS Visitors Center was discussed in great detail at the SAC meeting, including a presentation of architect and design plans and a site visit. For more information visit http://www.mbnms.nos.noaa.gov/visitorcenter/welcome.html. Contact Stacia Fletcher (stacia.fletcher@noaa.gov) with comments and questions.

Official SAC minutes: http://www.mbnms.nos.noaa.gov/intro/advisory/sac_min.html.

SUGGESTED FUTURE AGENDA ITEMS

- Processes and information needs for marine reserves in central California, including an MLPA update
- Status of research permits in the sanctuary
- Update on southern MBNMS studies by John Stephens, Adjunct Professor at Cal Poly
- Status of the Ocean Observatory system
- Implementation of the new RAP Purpose and Protocols